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An Annotated Bibliography of the Yellow-headed Cutworm

Apamea amputatrix (Fitch)

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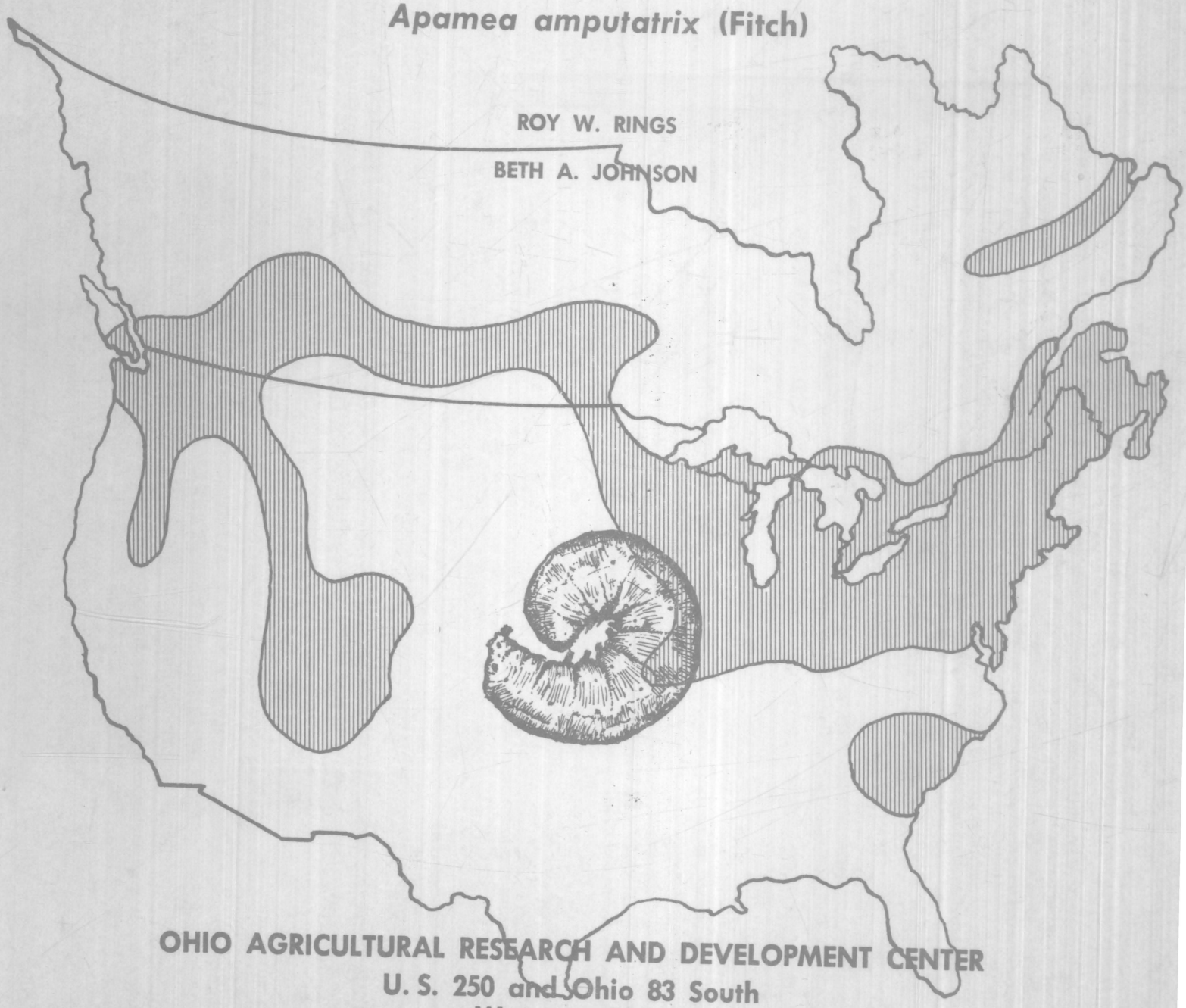

OHIO AGRICULTURAL RESEARCH AND DEVELOPMENT CENTER
U. S. 250 and Ohio 83 South
Wooster, Ohio

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AN ANNOTATED BIBLIOGRAPHY OF THE YELLOW-HEADED CUTWORM, Apamea amputatrix (Fitch)[1]

Roy W. Rings[2] and Beth A. Johnson[3]

Introduction

The purpose of this circular is to consolidate the abstracted literature on the yellow-headed cutworm, *Apamea amputatrix* (Fitch). The objective has been to compile a summary of research and extension information on developmental biology, seasonal and geographical distribution, host range, economic importance, habits, natural enemies, and control for pest management systems. It is not intended for taxonomic studies since the synonomy is incomplete and most faunal lists, museum lists, and checklists cannot be abstracted for the recovery of a single species.

The original description of the species is credited to Fitch in 1856. Boisduval's description in 1840 was considered invalid (*nomen nudum*) by Franclemont (1950), who concluded that the name *arctica* must be dropped and that *amputatrix* be used in its place. Some synonyms of the scientific name which have been used in the literature are:

Hadena amputatrix Fitch

Hadena arctica Boisduval

Mamestra arctica (Boisduval)

Septis arctica (Freyer)

Septis pluviosa Walker

Hadena amica Stephens is not a synonym but is a Treitschke name erroneously applied to *amputatrix* by Stephens in his book on British insects.

Sincere thanks are due to Dr. J. D. Lafontaine, Biosystematics Research Institute, Ottawa, Ontario, for assistance in determining the taxonomic status of the species.

The yellow-headed cutworm ranges from Labrador to the Carolinas in the east and westward to Vancouver Island and New Mexico. It is most abundant in western Ontario and the north central United States.

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[1]Investigations supported in part by Environmental Protection Agency Grant No. EPA R802547 and U.S.D.A. Cooperative State Research Service Grant No. 316-15-99. A cooperative research program including University of Missouri, Illinois Natural History Survey, Iowa State University, Michigan State University, University of Nebraska, New York State Agricultural Experiment Station, Ohio Agricultural Research and Development Center, Purdue University, and the University of Wisconsin.

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The species is univoltine and overwinters as an early instar larva. Gibson (1912) reported that larvae are most abundant in Canada in May and June. Adults occur during July, August, and September. The moth is described by Forbes (1954) and illustrated in color by Holland (1968).

Although this cutworm is not often reported as a pest of economic importance, local outbreaks have occurred in Canada. Forbes (1904) reported that in 1896 the yellow-headed cutworm caused severe damage to fields of oats, wheat, and corn in western Ontario and as a result many fields were plowed and replanted. In southwestern Ontario in 1924, extensive damage was caused to corn, peas, potatoes, and small grains, primarily on lighter soils. Knutson (1944) mentions the fact that the species feeds primarily on the underground portions of grasses, corn, and small grains, and because of these habits it is not always identified as the pest problem.

In addition to the host plants mentioned above, larvae have also been reported to feed on or cause damage to cabbage, currant, grapes, lettuce, rose, spinach, and turnip.

The bibliographical information was obtained by a search of the abstracting journals in The Ohio State University and the Ohio Agricultural Research and Development Center Libraries for the years 1864 to 1975. Photocopies or microfilms of material unavailable at these two libraries were obtained from the National Agricultural Library or from other university libraries.

The authors have established a current awareness profile on the yellow-headed cutworm in cooperation with the Mechanized Information Center of The Ohio State University Libraries. This computerized system of retrieval will aid in keeping this bibliographical information current. Supplementary bibliographical data on the yellow-headed cutworm will be summarized in 1977 and will be available on request from the Ohio Agricultural Research and Development Center.

Entries are listed alphabetically by author except in cases where the publication is anonymous or more likely to be identified with the governmental agency under which it was published. The abbreviations in the citations follow the American standard for periodical title abbreviations which was published in Biological Abstracts, 45(13):4347-4361. All references in this publication deal with *Ampamea amputatrix* (Fitch); however, the scientific name used in the original article is also used in the annotation so there is no question as to the species being cited. The numbers in parentheses following the annotation represent the page numbers which include information on the yellow-headed cutworm if they are different from the citation page numbers.

Bibliography

Beutenmüller, W. 1901. Descriptive catalogue of the Noctuidae found within 50 miles of New York City. Amer. Mus. Nat. Hist. Bull. 14(10):229-312.
The moth, caterpillar, food plants, and distribution of *Hadena arctica* Bdv. are discussed (306).

Boisduval, J. A. 1840. Genera et Index Methodicus Europaeorum Lepidoptorum. p. 120.
The yellow-headed cutworm was described as *Hadena arctica* n. sp. However, Franclemont (1950) declared the name *nomen nudum*.

Bowles, G. J. 1879. Canadian cut-worms. Annu. Rep. Entomol. Soc. Ont.:1-89.
The yellow-headed cutworm is common in Canada and northern United States. The caterpillar, moth, habits, and flight are discussed (39-40).

The Canadian Agricultural Insect Pest Review

This publication aims to present, in manuscript form, a periodical statement on current insect pest conditions. It presents data governing the seasonal appearance of insect pests, the effects of winter, degrees of parasitism, notes on distribution, and abundance of insect pests. It has been published by the Canada Department of Agriculture, Research Branch--Scientific Information Section, Ottawa, Ontario, from 1923 to present. From 1923 to 1967 this publication was known as the Canadian Insect Pest Review.

1924. Can. Insect Pest Rev. 2:48, 77.
"Extensive injury to corn, peas, potatoes, and small grains by the yellow-necked cutworm, *Septis (Hadena) artica* Bdv., has been experienced in southwestern Ontario on the lighter types of soil. Cutworm injury usually subsides early in June but owing to the lateness of the season, it has extended into the first week of July this year."(48) "On page 48, paragraph 1, '*Septis artica* Bdv.' should read '*Septis arctica* Bdv.'" (77)

1952. Can. Insect Pest Rev. 30:305.
Apamea amputatrix (Fitch) contributed to injury in sod in the Fraser Valley in British Columbia.

1953. Can. Insect Pest Rev. 31:2.
In Fraser Valley in British Columbia, *Apamea amputatrix* (Fitch) was present in sod in conjunction with the webworm outbreak.

1961. Can. Insect Pest Rev. 39:209.
Apamea amputatrix were taken in light traps at Chatham, Ontario.

1962. Can. Insect Pest Rev. 49:2.
Adult *Apamea amputatrix* were collected close to Lake Huron between Huron and Bruce counties in Ontario in July 1961.

Coles, I. 1872. Cutworms in corn. Country Gentleman, 37:339.
The cutworms cutting off young shoots of corn beneath the surface of the ground should develop into moths known as *Mamestra arctica*, Boisd., which was described by Fitch as *Hadena amputatrix*. These cutworms increase in size and destructiveness until the first of June.

Cook, W. C. 1920. Cutworms and armyworms. Office State Entomol., Univ. Farm, St. Paul, Minn., Circ. 52:1-8.

A key for the determination of the more common Minnesota cutworms is given. A small group of underground species lives almost entirely on field crops. The two of these best known are the yellow-headed and glassy cutworms. The life history and habits of the yellow-headed cutworm are described. (8)

Cook, W. C. 1921. Studies on the flight of nocturnal lepidoptera. 18th Rep. Minn. State Entomol., Agr. Exp. Sta.:43-56.
"In general, the season was marked by the scarcity of cutworm moths. No specimens of *Septis arctica*, normally an abundant species, or of any species of *Euxoa* were captured." (47)

Cook, W. C. 1936. Cutworms and armyworms. Minn. Agr. Exp. Sta. Circ. 48:1-8.
The yellow-headed cutworm, *Parastichtis (Septis) arctica*, Boisd., is an underground species which lives almost entirely on field crops. They occur in sod land. The larvae cut off the plants below the surface of the soil.

Crosby, C. R. and M. D. Leonard. 1918. Manual of vegetable garden insects. The Macmillan Co., New York. 391 pp.
The larvae and adult of the yellow-headed cutworm are described and its food plants and overwintering stages are discussed (281-282).

Edwards, H. 1889. Bibliographical catalogue of the described transformations of North American Lepidoptera. Bull. U. S. Nat. Mus. 35:1-147.
Eleven literature references describing the egg or larva of the yellow-headed cutworm are listed (87).

Ferguson, D. C. 1954. The Lepidoptera of Nova Scotia. Proc. Nova Scotian Inst. Sci. 23:161-375.
"2351 *S. amputatrix* Fitch. Generally distributed and often abundant at light and bait. July 8 - Sept. 6. This is the species formerly known as *S. arctica* Frr. but this name is a homonym of *arctica* Zett." (247)

Fitch, A. 1856. Insects infesting fruit trees. Third Rep. on Nox. and Other Ins. of New York State, 3:316-490.
According to the rules of international nomenclature, this article contains the original description of this species. The author describes the larva and adult of *Hadena amputatrix* n. sp.

Fletcher, J. 1901. Injurious insects in Ontario during 1900. Thirty-first Annu. Rep. Entomol. Soc. Ont.:1-111.
"Cutworms in Grain.--There have been reports from restricted localities, chiefly in the western counties, of injury to grain fields by the larvae of the amputating brocade moth (*Hadena arctica*, Bdv.) and other cutworms." (64)

Forbes, S. A. 1890. Sixteenth report of the state entomologist on the noxious and beneficial insects of the State of Illinois. Springfield Printing Co., Springfield, Ill. 109 pp.
"This is likewise apparently a single-brooded species, occasionally very injurious to corn, still destructive, according to our observations, the last of May, at which time, however, many of the larvae are full grown. We have collected the imago at Champaign in the middle of July." The larva is described. (97)

Forbes, S. A. 1904. The more important insect injuries to Indian corn. Ill. Agr. Exp. Sta. Bull. 95:331-399.
The life history, habits, food plants, and distribution of *Hadena arctica* Boisd. are discussed. (351)

Forbes, S. A. 1905. Twenty-third report of the state entomologist on the noxious and beneficial insects of the state of Illinois. Ill. State Entomol. Rep. 23:1-273.
Appearance, habitat, distribution, habits, and food plants of the yellow-headed cutworm, *Hadena arctica* Boisd., are discussed. (21)

Forbes, W. T. M. 1939. The muscles of the Lepidopterous male genitalia. Ann. Entomol. Soc. Amer. 32:1-10.
The paper describes the genetalic morphology of *Septis arctica*, a typical member of the trifid Noctuidae, with some notes on other Macroheterocera. (1)

Forbes, W. T. M. 1954. Lepidoptera of New York and neighboring states. Noctuidae. Part III. Cornell Univ. Agr. Exp. Sta. Mem. 329:1-433.
A detailed description of the moth, (*S. arctica*), is given. The seasonal and geographical distribution and appearance of larvae are briefly discussed. (183-184)

Franclemont, J. G. 1950. Notes on some genera and species of eastern moths with descriptions of new species (Lepidoptera, Phalaenidae). Bull. Brooklyn Entomol. Soc., 45(5):144-155.
This taxonomic study shows that the genus name *Apamea* Ochsenheimer has priority over *Septis* Hübner. The correct scientific name for the yellow-headed cutworm should then be *Apamea amputatrix* (Fitch).

French, G. H. 1878. Lepidoptera. Cutworms. Ill. Dep. Agr. Trans. 15:217.
"*Hadena arctica* Boisd.--The Amputating Brocade Moth. The larva is the Yellow-headed Cutworm. This species is the *Hadena amputatrix* of Dr. Fitch, the caterpillar of which he named as above the Yellow-headed Cutworm." The moth is described.

French, G. H. 1878. Moths--Lepidoptera. 7th Annu. Rep. State Entomol. Ill. for 1877:79-106.
"The Amputating Brocade Moth--(*Hadena arctica* Boisd.) The larva is the Yellow-headed Cutworm. The characteristic habits of this caterpillar were studied by Dr. Fitch and given in his report for 1863 to the State Board of Agriculture of the State of New York." (96-97)

Fyles, T. W. 1890. Kitchen-garden pests and how to deal with them. Twenty-first Annu. Rep. Entomol. Soc. Ont.:1-105.
The caterpillar of the barred-arches moth, (*Hadena amica* Harris), was called the Yellow-headed Cutworm." It was a smoky-brown color and the head, cervical shield, and anal plate were yellow or chestnut colored. This cutworm cut young corn off below the surface of the ground. (49)

Gibson, A. 1908. The principal injurious insects of the year 1907. Insects injurious to cotton and other southern field crops. U. S. Yearbook of Agr.:541-552.
"The glassy cutworm (*Hadena arctica* Bdv.) was identified with injury to sugar beet in Utah." (545) (Authors' note: It is unclear as to whether this refers to the glassy cutworm, *Crymodes devastator* (Brace), or the yellow-headed cutworm.)

Gibson, A. 1912. Cutworms and armyworms. Can Exp. Farms Entomol. Bull. 3:1-29.
The appearance, economic importance, habits, and life history of the yellow-headed cutworm, *Hadena arctica* Bdv., are discussed. (23-24)

Gibson, A. 1915. Cutworms and their control. Dominion Can. Dep. Agr. Entomol. Branch Bull. 10:1-31.
The appearance, habits, and life history of the yellow-headed cutworm, *Hadena arctica* Bdv., are given. (25-26)

Gossard, H. A. 1917. Cutworms. Their habits, characteristics, and means of control. Ohio Agr. Exp. Sta. Mon. Bull., 2(3):85-90.
"The yellow-headed cutworm (*Hadena arctica*) is similar in general appearance, but the body is pale smoky gray and the head and neck-shield are both tawny yellow. (86)

Grote, A. R. 1873. A study of North American Noctuidae. Bull. Buffalo Soc. Nat. Sci. 1:95-128.
"*Hadena arctica*, Boisduval. *Hadena amputatrix*, Fitch. Habitat, Atlantic District." (108)

Grote, A. R. 1875. Check list of the Noctuidae of America, North of Mexico. Beinecke and Zesch., Printers, Buffalo, N. Y. (1):1-28.
The yellow-headed cutworm is included in this list as *Hadena arctica* Boisd. *Mamestra amica* Harris and *Hadena amputatrix* Fitch are listed as synonyms. (9)

Grote, A. R. 1877. Appendix: Uhler, R. P. Report upon insects collected by R. P. Uhler in 1875, including monograph of families Cydnidae, Saldidae and Hemiptera, etc. Bull. U. S. Geol. Surv. 3:797-801.
"*Hadena arctica* (Boisd.). One specimen Clear Creek Canõn." (797)

Grote, A. R. 1882. New checklist of North American moths. New York Entomol. Club. 73 pp.
The yellow-headed cutworm is included in this checklist as *Hadena arctica* Boisduval. *Hadena amputatrix* Fitch is listed as a synonym. (27)

Harris, T. W. 1852. A treatise on some of the insects of New England which are injurious to vegetation. Printed by White and Potter, Boston, Second Ed. 513 pp.
The caterpillar was described by mistake as a British species under the name of *Hadena amica* or the barred arches moth. (350)

Harris, T. W. 1862. A treatise on some of the insects injurious to vegetation. Welch, Bigelow and Co., Printers to the University, Cambridge. Flint Ed. 640 pp.
The caterpillar was described by mistake as a British species under the name of *Hadena amica* or barred arches moth. (451) This is a reprint of the previous article.

Hart, C. A. 1903. Synopsis of insect collections for distribution to Illinois High Schools. Ill. State Lab. Nat. Hist.:7-64.
"97. *Hadena arctica* Boisd. L., Yellow-headed Cutworm. F. underground parts of grasses and grains also other herbaceous plants. H. as young larva, destructive from May even to July; pupates in cell in earth; I. late July into Sept. More injurious northwards. With greenish and carmine tints; line 4 irregular space between it and line 3, and also the kidney spot much paler than rest of forewing." (26)

Herrick, G. W. 1930. Some insects injurious to vegetables. New York Dep. Agr. and Markets Bull. 240:58-69.
The yellow-headed cutworm is cited as an example of the cutworm complex attacking vegetables. The life history and seasonal distribution are discussed. (61)

Holland, W. J. 1968. The moth book. A guide to the moths of North America. Dover Publications, Inc., New York. 479 pp.
"(21) *Hadena arctica* Boisduval, Plate XIX, Fig. 45, (The Northern Hadena) Syn. *amputatrix* Fitch. A large and handsome species, easily recognizable. It ranges from Canada and New England into the Carolinas and westward to Colorado." (169) The moth is illustrated in color.

Knutson, H. 1944. Minnesota Phalaenidae (Noctuidae). The seasonal history and economic importance of the more common and destructive species. Minn. Agr. Exp. Sta., Tech. Bull. 165:1-128.
Museum specimens examined, light trap collections, seasonal history, and economic importance of *Septis arctica* (Freyer) are discussed. (58)

Lintner, J. A. 1888. Cutworms. N. Y. State Mus. Bull. 6:1-36.
Appearance, habits, natural history, favorable conditions, food plants, literature, predators, parasites, and control measures for cutworms are discussed. *Hadena arctica* occurs in New York.

Lochhead, W. 1919. Class book of economic entomology. P. Blakiston's Son and Co., Philadelphia. 436 pp.
The larva of *Septis arctica* is briefly described and the adult is illustrated. The larvae are active in July on cereal crops and vegetables. (188-189)

Marten, J. 1880. Noctuidae. (Owlet Moths.) Ill. Dep. Agr. Trans. 18: Append.: 128-140.
The larva of *Hadena arctica*, the yellow-headed cutworm, is described. (137)

Minot, C. S. 1870. Brief notes on the transformations of several species of Lepidoptera. Can Entomol. 2:27-29.
A description of the eggs of *Mamestra arctica* Boisd. is given. (28)

Rennie, R. W. 1901. Notes on insects of the year 1900. Thirty-first Annu. Rep. Entomol. Soc. Ontario:1-111.
"That most exasperating of all injurious insects, at least to the average gardener, made its appearance last spring in unusually large numbers, viz., the cutworm, mostly the larvae of *Hadena arctica*. There seems to be a considerable amount of uncertainty in regard to the appearance and disappearance of this insect." (41)

Riley, C. V. 1869. First annual report on the noxious, beneficial and other insects of the State of Missouri. Fourth Annu. Rep. State Board Agr. for 1868:182-187.
The yellow-headed cutworm is of a shining livid color, with a yellowish or chestnut-colored head and a horny spot of the same color on the top of the first and last rings. It is a large species and produces the amputating brocade moth (*Hadena amputatrix*) Fitch. (87)

Saunders, W. 1870. On the larvae of some Lepidoptera. Can. Entomol. 2:74-76.
A description of the larva of *Mamestra arctica* is given. (75)

Smith, J. B. 1899. Insects of New Jersey. Suppl. 27th Annu. Rep. State Board. Agr.:1-755.
"*Xylophasia arctica* Bvd. Common throughout the State, VI to IX: larva cutting corn, cabbage, etc." (413)

Stephens, J. 1829. Illustrations of British entomology. Haustellata 2:180.
Stephens erroneously applied the name *Hadena amica* to *amputatrix*.

Tietz, H. M. 1951. The Lepidoptera of Pennsylvania. Penn. State College Agr. Exp. Sta. Manual:1-194.
A list of references, synonyms, life history, and food plants are given for *arctica* Boisd. (72)

Tietz, H. M. 1972. An index to the described life histories, early stages and hosts of the macrolepidoptera of the continental United States and Canada. Allyn Museum of Entomology, Sarasota, Fla. 1041 pp.
This two-volume work lists the approved common names of moths and butterflies, a bibliography and host range for each species, as well as a short synonomy of the scientific names of the species. The last section lists the scientific and common names of plant hosts and then lists the lepidoptera which have been reported to feed upon these hosts.

Treat, A. E. and K. D. Roeder. 1959. A nervous element of unknown function in the tympanic organs of moths. J. Ins. Physiol., 3:262-270.
A large, richly tracheolated, Type II neurone occurs in the region known as the *Bügel* in the thoracic tympanic organs of many noctuid moths. Physiological evidence for the existence of the B cell has been obtained for the yellow-headed cutworm, *Septis arctica* Boisd. (266)

United States Department of Agriculture Cooperative Economic Insect Report[4]

The Bureau of Entomology of the U. S. Department of Agriculture, in cooperation with the State Entomologists, Entomologists of the Agricultural Experiment Stations, State Departments of Agriculture, Agricultural Colleges, and other entomological agencies, organized an Insect Pest Survey in 1921. This survey attempted to assemble and disseminate all data on the distribution, seasonal and regional fluctuation of insect abundance, weather data as related to insect outbreaks, phenological data, and other miscellaneous information. Each year an annual digest of the important facts gathered during the past season was published in the form of Insect Pest Summaries.

From 1921 to 1950 this publication was entitled The Insect Pest Survey Bulletin. This was not bound or indexed for the years 1942-1949. In 1951 the Bulletin was replaced by the Cooperative Economic Insect Report, Vol. 1, No. 1, July 31, 1951. No explanation is given in this publication for the name change.

1924. U. S. Dep. Agr. Insect Pest Surv. Bull. 4:155.
"Extensive injury to corn, peas, potatoes, and small grains by the yellow-necked cutworm, *Septis (Hadena) arctica* Bvd., has been experienced in southwestern Ontario on the lighter types of soil."

1928. U. S. Dep. Agr. Insect Pest Surv. Bull. 8:201.
"What we determined as *Septis (Hadena) arctica* Bdv. caused considerable damage to corn at Winamac, Indiana, on July 1."

1955. Coop. Econ. Insect Rep. 5:538, 569, 645.
In Washington a yellow-headed cutworm (*Apamea amputatrix*) was causing damage to bluegrass seed. This was the first report for several years of larval damage by this insect (538). 659 - wrong reference, 645 - correction.

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[4]Issued by Plant Protection and Quarantine Programs, Animal and Plant Health Inspection Service, U. S. Department of Agriculture.

1956. Coop. Econ. Insect Rep. 6:127.
The yellow-headed cutworm (*Apamea amputatrix*) caused severe damage in a field of bluegrass raised for seed in Garfield County, Washington.

1957. Coop. Econ. Insect Rep. 7:123.
The yellow-headed cutworm (*Apamea amputatrix*) caused severe damage to several fields of Merion bluegrass in Garfield County, Washington.

1968. Coop. Econ. Insect Rep. 18:734
The yellow-headed cutworm (*Apamea amputatrix*) was taken at light traps in Michigan.

Walsh, B. D. 1865. Notes on insects infesting the currant and gooseberry. Prac. Entomol. 2:22.
A large moth that appears during July was named by Dr. Fitch to be the "Amputating brocade moth--*Hadena amputatrix*." This was previously described by Boisduval as *Mamestra arctica*; it is mentioned in Harris as *Hadena amica*.

Index

This index was prepared on the computer from keywords indicated on the index card file. Information may be retrieved by author's name (left-hand column) and year (right-hand column); by host plant, by geographical locality and by subject, *i.e.*, larval description, life history, outbreak, geographical distribution, etc. The Canadian Insect Pest Review is abbreviated as CIPR, the Insect Pest Survey as IPS, and the Cooperative Economic Insect Report as CEIR.

LIFE-HISTORY* GIBSON. CANADA LIFE-HISTO 02911 1915
LIFE-HISTORY* EDWARDS. LARVAL-DESCRIPTI 01411 1889
LIGHT-TRAPS* CEIR. MICHIGAN LIGHT-TRAPS 05611 1968
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TURF* CEIR. WASHINGTON TURF* CEIR. WAS 05511 1957
TURF* CIPR. BRITISH-COLUMBIA TURF* CIP 00511 1952
TYMPANIC-ORGANS B-CELL* TREAT. TYMPANIC 05211 1959
UTAH SUGAR-BEET* GIBSON. UTAH SUGAR-BEE 02711 1907
VEGETABLES* LOCHHEAD. LARVAL-DESCRIPTIO 04211 1919
VEGETABLES NEW-YORK* HERRICK. VEGETABLE 03811 1930
WALSH. CURRANT GOOSEBERRY SNYONOMY* WAL 05711 1865
WASHINGTON TURF* CEIR. WASHINGTON TURF* 05511 1957
WASHINGTON* CEIR. TURF WASHINGTON* CEI 05411 1956